

Work Order ID 54498

December 10, 2009 11:46:05 AM



Page 1

Item ID: D212-664-207TRN

Accept



Setup Start



Revision ID:

Stop



Item Name: Crosstube Turning Detail

Start Date: 10/12/2009 Start Qty: 1.00



Cust Item ID:

Required Date: 21/12/2009 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Stop



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr

Revision Nbr

D212-664-247

Rev B

100

0.00



MORI SEIKI CNC LATHE LARGE

Mori Seiki

Memo

0.00

Mori Seiki CNC Lathe Large

1-Fill tube with sand & install plugs DT8534 on both ends as per Folio FA706
2-Turn first side as per Folio FA706
3- File transition lines smooth.

O.N 09 - 12 - 12 0

110

0.00



QC1- Inspect dimensions to dimension sheet

QC

Memo

0.00

Quality Control

O.N 09 - 12 - 12 0

120

0.00



MORI SEIKI CNC LATHE LARGE

Mori Seiki

Memo

0.00

Mori Seiki CNC Lathe Large

1-Turn second side as per Folio FA706
2- File transition lines smooth.
3-Remove sand and plugs

O.N 09 - 12 - 12 0

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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NOTE: Date & initial all entries

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130

QC1- Inspect dimensions to dimension sheet

0.00



QC

Memo

0.00

Quality Control

Q.N 09 -12-12 ①

140

QC8- Inspect parts - second check

0.00



QC

Memo

0.00

Quality Control

1 - ~ Aug 9-12-15

150

Crosstubes Chemical Conversion

0.00



HandFXtube

Memo

0.00

Hand Finishing Crosstubes

1 - ~ Aug 9-12-15

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Page 3

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Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Stop



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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160

QC3- Inspect Part Finish

0.00



QC

Memo

0.00

Quality Control



MB 09-12-16

170

Packaging

0.00



Packaging

Memo

0.00

Packaging

Identify and stock in kanban rack
Location: L-G-X-TUBE CELL

1

- AMP 12-16

180

QC21- Final Inspection - Work Order Release

0.00



QC

Memo

0.00

Quality Control

09/12/17

MF 09-12-16

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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NOTE: Date & initial all entries

Picklist Print

December 10, 2009 11:46:09 AM

Page 1

Work Order ID: 54498



Parent Item: D212-664-207TRN



Parent Item Name: Crosstube Turning Detail

Start Date: 10/12/2009

Required Date: 21/12/2009

Comments: IPP RevC: as per ECN09-696 09.11.20 DD verified by:EC

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last # Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
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D6008-132

Manufactured

No

110

Each

10.0000

1.0000



Crosstube extrusion

Q. N 09.12.12 Q

Warehouse

Loc Qty

Loc Code

Location

Main Warehouse

LG

10

50892

10

1

W/O:		WORK ORDER CHANGES					
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

NOTE: Date & initial all entries

DART AEROSPACE LTD		Work Order:	54498
Description: Crosstube Assembly (205/212 Low Aft)		Part Number:	D212-664-247
Inspection Dwg: D212-664-247 Rev: A		Page 1 of 1	

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☐ Prototype

Inspection Sheet Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	0.438	+/-0.010	0.438	/		
	2.680	+0.005/-0.000	2.683	/		
	2.680	+0.005/-0.000	2.684	/		
	2.687	+0.005/-0.000	2.693	/		
	2.802	+0.005/-0.000	2.807	/		
	2.906	+0.005/-0.000	2.910	/		
	3.009	+0.005/-0.000	3.014	/		
	3.112	+0.005/-0.000	3.116	/		
	3.250	+0.005/-0.000	3.250	/		
SIDE B	0.438	+/-0.010	0.438	/		
	2.680	+0.005/-0.000	2.683	/		
	2.680	+0.005/-0.000	2.684	/		
	2.687	+0.005/-0.000	2.693	/		
	2.802	+0.005/-0.000	2.807	/		
	2.906	+0.005/-0.000	2.910	/		
	3.009	+0.005/-0.000	3.014	/		
	3.112	+0.005/-0.000	3.116	/		
	3.250	+0.005/-0.000	3.250	/		
	420.27	+/-0.030	128.290	/		

Measured by:	O.N	Audited by:	AWA	Prototype Approval:	N/A
Date:	08.12.12	Date:	7-12-16	Date:	N/A
Rev	Date	Change	Revised by	Approved	
A	08.11.07	New Issue (P/O D212-664-207)	KJ/EC	 	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

B

Item	Qty -247	Qty -247B	Part Number	Description
1	X		D212-664-247	CROSSTUBE ASSEMBLY (205/212 LOW AFT)
2		X	D212-664-247B	CROSSTUBE ASSEMBLY (214 LOW AFT)
3	1	1	D6008-132	CROSSTUBE
4	2	2	D2940-1	SUPPORT
5	4	4	D3595-063-530	RUBBER CUSHION
6	2	2	D3660-1	CUFF
7	4	4	MS21920-28	CLAMP (OR MS21920-30)
8	44	44	CR3212-4-06	RIVET (OR M7885/3-4-06)
9	A/R	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)
10	A/R	A/R	SIKAFLEX-241/-291	SEALANT (OR PROSEAL 890 OR MIL-S-8802 CLASS B2 SEALANT)

GENERAL NOTES:

- MATERIAL: MANUFACTURED FROM D6008-132
FINISHED LENGTH = 128.268±0.020 (BEFORE BENDING/TRIMMING)
- FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- UNITS: INCHES UNLESS OTHERWISE NOTED.
- BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- IDENTIFICATION: SCRIBE DART PART NUMBER "D212-664-XXX" AND BATCH NUMBER ON INSIDE OF CUFF
USING VIBRATING STYLUS
- WEIGHT: D212-664-247 = 36.6 lbs (PER IIN-D212-664)
D212-664-247B = 36.6 lbs (PER IIN-D212-664)
- PART IS SYMMETRIC ABOUT CENTERLINE.
- WHEN MACHINING TAPER, RUN CUTTER OFF PART. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD
BE SMOOTH.
- BEND PROGRESSIVELY WITH A MINIMUM OF 8 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6%
BASED ON O.D. EXCEPT UP TO 10% IS ALLOWED IN AREA NOTED.
- LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- INSTALL D2940-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF
D2940-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER
INSTALLATION AND PRIOR TO PACKAGING.
- INSTALL MS21920-28 CLAMPS (OR 30) WITH D3595-063-530 RUBBER CUSHIONS TO SECURE THE D2940-1
SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE OF CROSSTUBE SUPPORT.
- EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE
SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS.
DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE
UNACCEPTABLE.
- TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS
NOT BOTTOMED-OUT AFTER TORQUING.
- INSTALL D3660-1 CUFF AFTER CHEMICAL CONVERSION COAT BUT BEFORE PAINT, WITH A LAYER OF
SIKAFLEX-241/-291 OR PROSEAL 890 OR MIL-S-8802 CLASS B2 SEALANT BETWEEN CUFF AND CROSSTUBE.
SEAL EDGE OF CUFF TO ENSURE NO GAPS.
- TOUCH-UP HOLES WITH CHEMICAL CONVERSION COAT.

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 54498

BL 0912-10

RELEASED
R 2009-10-79
MP

B	REVISE GENERAL NOTES/PART LIST; UPDATE TO CURRENT STANDARDS; ADD -247B (ZN C4-2, D5-2)	RF	09.09.30
A	NEW ISSUE	CP	07.07.07
REV.	DESCRIPTION	BY	DATE
DESIGN	RF	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF	DRAWING NO.	REV. B
CHECKED	RF	D212-664-247	SHEET 1 OF 4
MFG. APPR.	RF	TITLE	SCALE
APPROVED	RF	CROSSTUBE (205/212 LOW AFT)	NTS
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DATE	09.09.30		

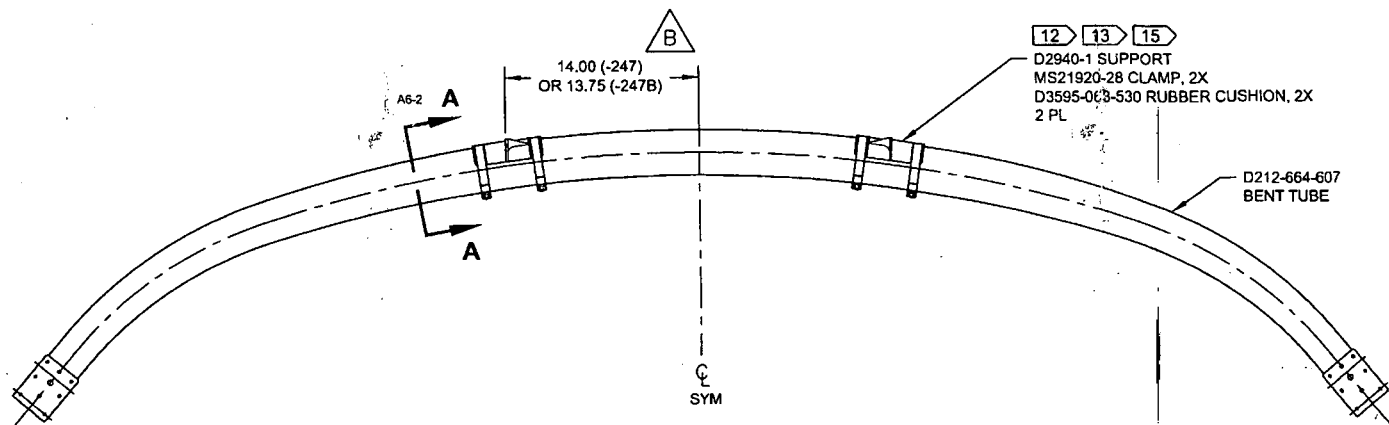
W/O:		WORK ORDER CHANGES					
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Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

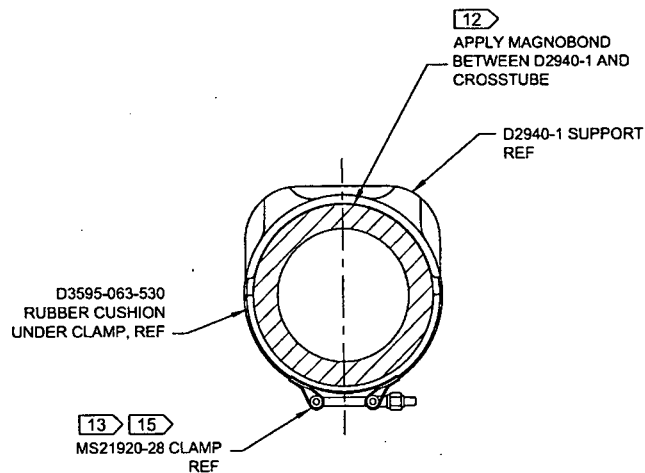
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NOTE: Date & initial all entries



**D212-664-247/-247B
ASSEMBLY DETAIL**



SECTION A-A D6-2
SCALE 4X

RELEASED
2009-10-29

WLO 54485

DESIGN	RF	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	RF	DRAWING NO.	REV. B
MFG. APPR.	RF	D212-664-247	SHEET 2 OF 4
APPROVED	RF	TITLE	SCALE
DE APPR.	RF	CROSSTUBE (205/212 LOW AFT)	NTS
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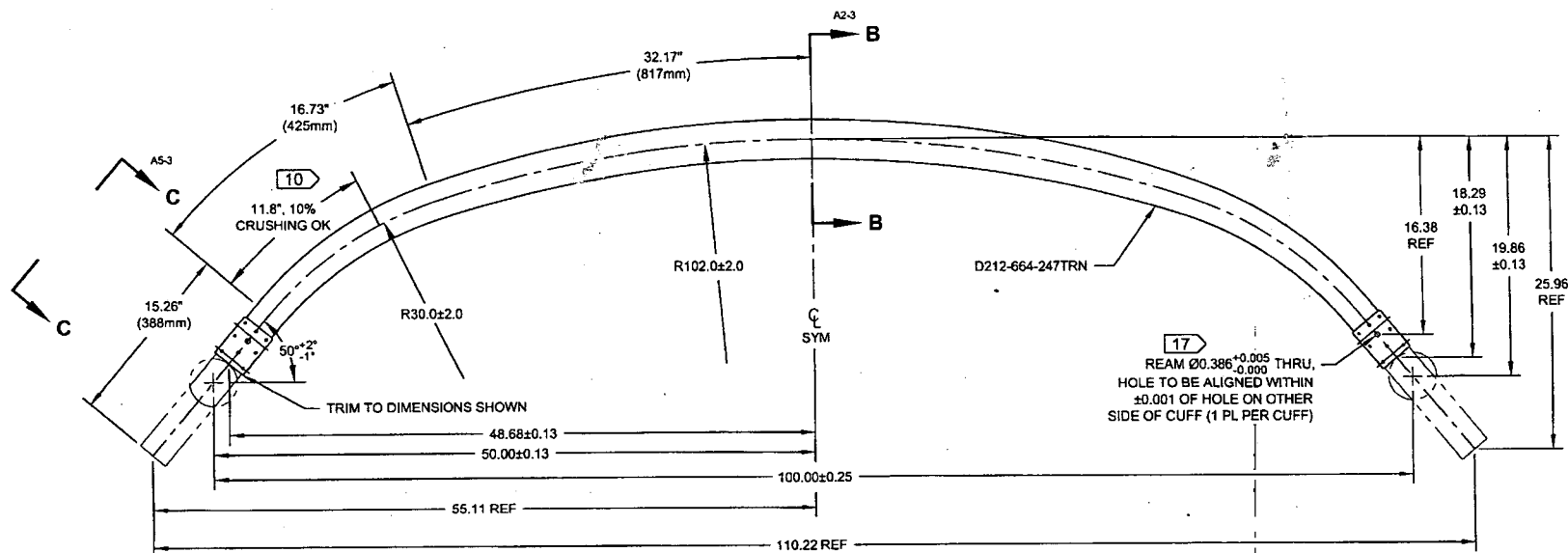
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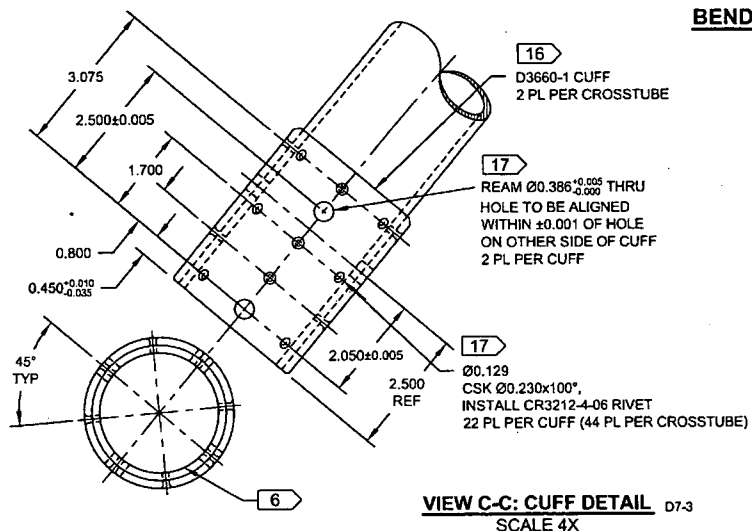
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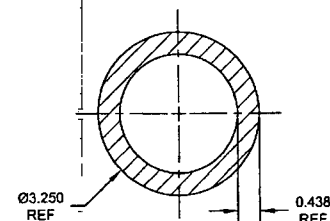
NOTE: Date & initial all entries



D212-664-607
BENDING AND DRILLING DETAIL



VIEW C-C: CUFF DETAIL D7-3
SCALE 4X



SECTION B-B D4-3
SCALE 4X

RELEASED
2009-10-29

DESIGN	97	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	97	DRAWING NO.	REV. B
MFG. APPR.	10	D212-664-247	SHEET 3 OF 4
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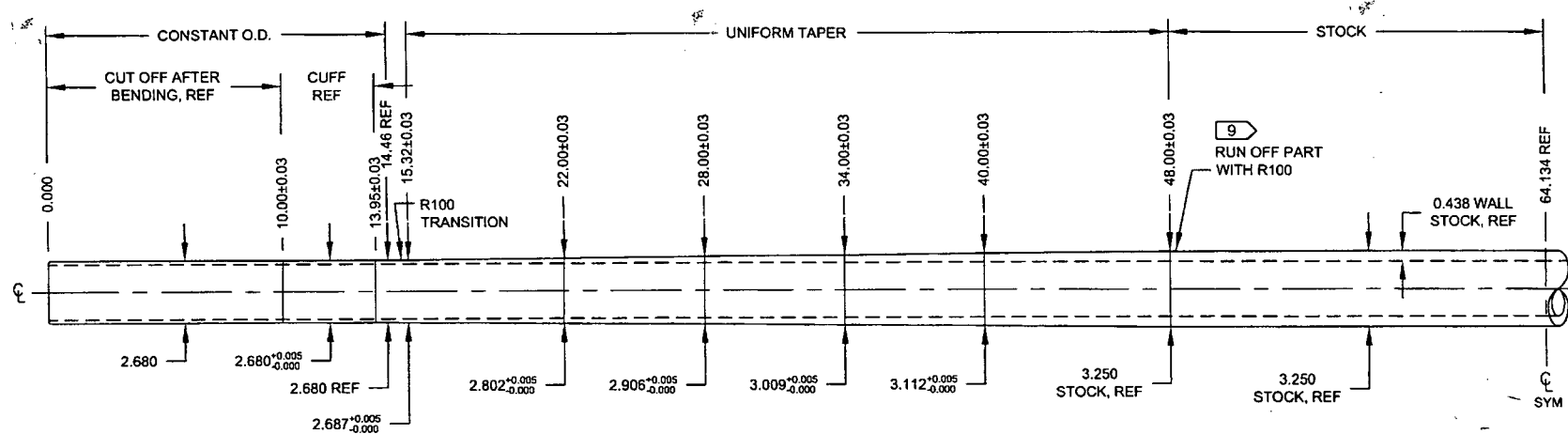
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D212-664-247TRN
TURNING DETAIL

RELEASED
 2009-10-29

W/O 54495

DESIGN	RF	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	RF	DRAWING NO.	REV. B
MFG. APPR.	RF	D212-664-247	SHEET 4 OF 4
APPROVED	RF	TITLE	SCALE
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